

# PREVENT THE CAUSE, NOT JUST THE SYMPTOMS

Bill Lands, 6100 Westchester Park Drive, Apt.1219, College Park, MD 20740

## Summary

Every year, USA corporations and their employees transfer trillions of dollars to insurers to handle health care financing. If people could stay healthy, less health care treatments need to be paid. However, health care treatments that remove only signs and symptoms and leave the primary cause unaltered and unattended are uneconomical and unethical. Corporate officers need clear feedback on their corporate health-related losses which informs them of preventable causal conditions. Unaltered causes make continued health-related losses. Focused feedback data can help remove a preventable cause of disease and its current health care costs. Clear information can motivate employers and employees to take simple voluntary steps that prevent future health-related financial losses.

## A problem to solve

Financial loss comes from not receiving expected value when transferring funds to another organization. Each losing organization needs feedback data to recognize the preventable primary cause for the transfer. Large self-insured corporations with tens of thousands of employees who are paying for expected service have large financial losses caused by preventable health-related disorders. ***Funds that support all of the researchers, insurers, hospitals, nurses, doctors and wellness advisors who act on health-related concerns come ultimately from employers and employees (i.e., the public) who pay for expected benefits.*** The organizations that already profit from health-care fund transfers may not volunteer the feedback data needed to stop other peoples' losses. Corporate decision-makers who see internally generated feedback data ***expressed in language and terminology of corporate self-awareness and self-interest*** will likely want effective programs that prevent health-related financial loss.

## A key to the answer

A useful start in preventing loss is in recognizing that omega-3 and omega-6 hormone actions regulate nearly every cell and tissue in our body (1, 2). Further, each person's balance of omega-6 and omega-3 hormone precursors depends on the balance of vitamin-like omega-6 and omega-3 nutrients in foods that are eaten (2). Health problems made worse by excessive omega-6 actions include cardiovascular and diverse immune-inflammatory and psychiatric disorders, including atherosclerosis, arthritis, asthma, bone loss, cancer growth, heart attacks, length of hospital stays, depression, suicide, classroom disruptions and unproductive workplace behaviors (2, 3). Eating less omega-6 and more omega-3 can decrease many health disorders and their financial losses. Each employee needs feedback data to know the status of their hormone precursors to motivate informed food choices. For decades, pharmaceutical companies have designed and marketed drugs to cut excessive omega-6 hormone actions. However, their marketing messages do not inform the public how excessive causal omega-6 actions come from imbalanced food choices. Motivation to design and implement simple effective preventive programs that teach and implement better individual food choices will come when corporate executives arrange visible ***quantitative feedback that links preventable tissue hormone imbalance to existing corporate financial losses.***

## Opportunity still un-tapped

The Multiple Risk Factor Intervention Trial (MRFIT) 25 years ago cost over \$115 million dollars and gathered data over five years involving hundreds of researchers and tens of thousands of people. Presumably, the data obtained would have been used by corporations to develop new profitable business plans to meet public needs. However, the study reported no difference in mortality between

“treated” and control groups. The disappointed investigators failed to evaluate carefully the actual causal mediators in cardiovascular disease (CVD) and coronary heart disease (CHD) (2). Rather, their mind-set when handling their data led them to discard and/or reject many bits of information that did not fit their initial interest in treating some non-causal factors. Failure to prevent the primary dietary cause leaves incidence, prevalence and financial losses of CVD continuing at high levels today.

Inadequate health care programs continue attending to easily measured non-causal associated risk factors (2) such as body mass index, LDL cholesterol, insulin resistance and CRP rather than causal mediators (3, 4). The MRFIT data point to a causal mediator we can prevent. People with more than half of their hormone precursors as omega-6 have more CHD deaths than those with less than half. Americans typically eat foods that give an average near 75% omega-6 in HUFA. Only one-fifth have an average below 65%. Figure 1 combines different quintile values of % omega-6 in HUFA hormone precursors (squares) with results from the Quebec Heart Study and other studies. They all fit a simple relationship (1):

$$\text{CHDdeaths}/100,000 = 3 \times \% \text{omega-6 in HUFA} - 75$$

### Preventable financial loss

The US Centers for Disease Control and Prevention (CDCP) describes losses due to heart disease and stroke as “among the most preventable” (5). Its website notes that “Heart disease and stroke, the first and third leading causes of death for men and women, are among the most widespread and costly health problems facing our nation today, yet they also are among the most preventable. Cardiovascular diseases, including heart disease and stroke, account for more than one-third (34.3%) of all U.S. deaths.” It also notes that “The cost of cardiovascular diseases in the United States, including health care expenditures and lost productivity from deaths and disability, is estimated to be more than \$503 billion in 2010”. The combined acute clinical CVD events, CHD and stroke, are approximately half of the overall annual \$503 billion CVD cost, averaging about \$142,000 per acute clinical event. CDCP describes CVD prevalence as more than 1 in 3 (81 million) U.S. adults currently live with one or more types of cardiovascular disease.

### Feedback data linking health claim costs to hormone precursors

The easily assayed biomarker of the % omega-6 in HUFA hormone precursors (6) is a causal intermediate between diet, disease and death (see Figure 2). It is a valid indicator of nutrient intakes and a valid surrogate for predicting many health problems caused by preventable omega-3 deficits (2). These health problems extend beyond cardiovascular health claim costs and include diverse immune-inflammatory and psychiatric disorders, including atherosclerosis, arthritis, asthma, bone loss, cancer growth, heart attacks, length of hospital stays, depression, suicide, classroom disruptions and unproductive workplace behaviors (2, 3).

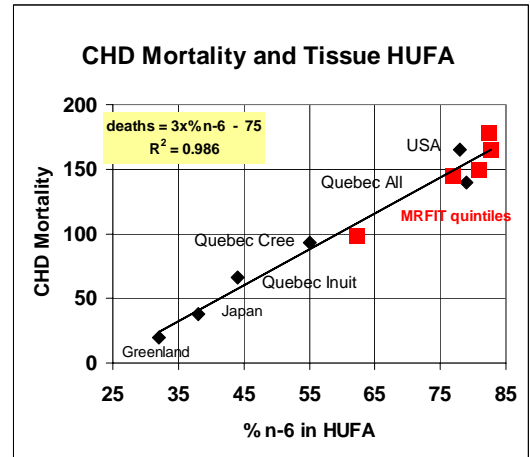


Figure 1. Relate CHD to biomarker

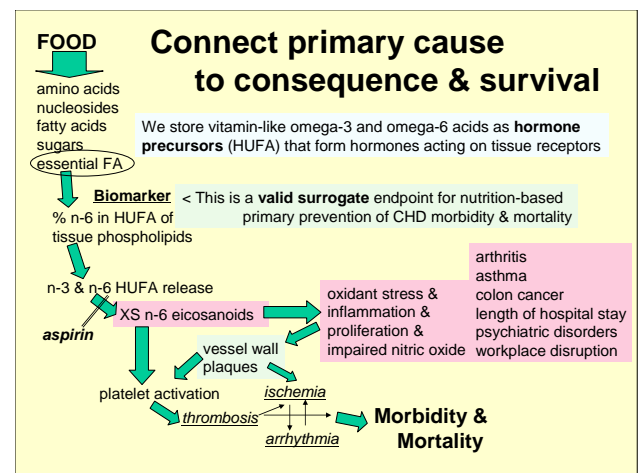


Figure 2. Connecting cause to consequence

We can estimate financial losses that might be prevented by eating less omega-6 and more omega-3 and lowering the proportion of omega-6 in the HUFA hormone precursors. Combining CDCP information of an average cost of \$142,000 per acute CVD event with MRFIT data in Figure 1 estimates that each 10% lower % omega-6 in HUFA relates to a \$42 lower annual risk of an individual's CHD financial loss - equal to \$420,000 lower loss for a group of 10,000 employees. Estimating four acute CVD clinical events per each fatal CHD event predicts an annual CVD financial loss for a group of 10,000 employees can be **\$1.7 million less** for each 10% less omega-6 in HUFA.

With so many disorders caused by an omega-3 deficit in hormone precursors (4), we can allocate among typical American proportions of HUFA an average annual health claim cost of \$4,200 per adult and see a dollar equivalent cost near \$550 per 10% omega-6 (Figure 3), equivalent to \$5.5 million annually per 10,000 employees. CEOs can arrange feedback on this hypothetical relationship if they include simple finger-tip measurements of employees' tissue HUFA proportions (6) in records of health-related costs. Employers and employees alike can view their preventable risk for impaired health along with actual financial losses.

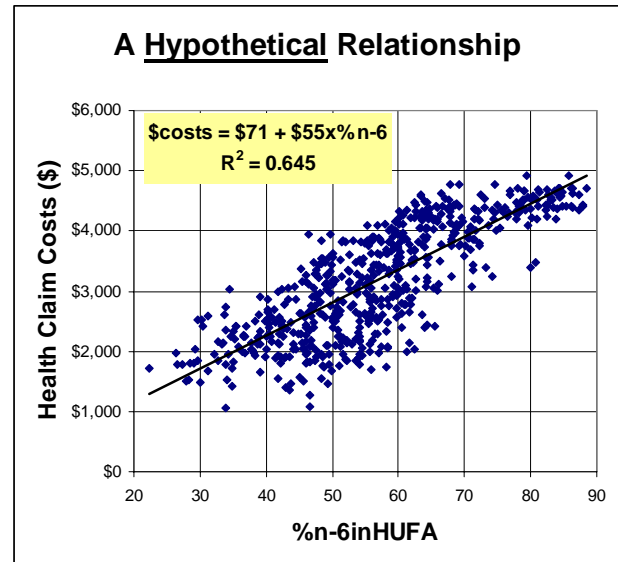


Figure 3. Relating cost to cause.

More preventable corporate financial loss occurs when health-related absenteeism and presenteeism cause lost workplace productivity. Presenteeism is a fertile area for primary prevention when employee conduct disorders caused by omega-3 deficits (7, 8) disrupt workplace productivity with inattentive and oppositional behaviors plus high perceived stress and anxiety with more accident frequency and severity. Loepke (9) estimated that workplace losses due to health-related situations may be four times greater than the medical and pharmacy claims. If correct, **a 10% lower value represents \$22 million less loss annually for 10,000 employees.** Corporate executives can arrange feedback to examine this relationship further. New types of corporate productivity measurements and record-keeping can assemble feedback data likely to motivate employers to put even greater emphasis on **preventing** omega-3 deficits among employees (4).

While the skills and knowledge of actuaries operate in a "silo" of complex networks for health care financing (10, 11), the skills and knowledge of biochemists operate in a "silo" of complex networks of molecular mechanisms that link causal connections between foods, disease and death (2, 4). Both disciplines develop detailed models and complex system analysis (2, 10, 11) that can give useful feedback. CEOs need feedback that prevents their own corporate losses. Unfortunately, data selected to optimize funds to support researchers, insurers, hospitals, nurses, doctors or wellness advisors acting on health-related concerns **will not likely optimize fund transfers meeting goals of employers and employees (i.e., the public) who expect services to prevent their own financial losses** (3).

Effective prevention of health-related losses will come from feedback that monitors and encourages voluntary smoking cessation, eating more omega-3, less omega-6 and fewer calories per meal and using a regular exercise regimen. Preventing primary causes of disease will also generate another valuable benefit in the form of a higher quality of life for employees.

## **A Historical Note:**

Eighty years ago, Kodak executives devised a corporate plan to decrease financial losses from employee absenteeism. Supplements of cod liver oil led treated employees to be absent 31% less time (12). When executives made the decision, the vitamin-like omega-3 and omega-6 nutrients had just been discovered, and thirty years passed before their storage in tissues and conversion to potent hormones was understood. The supplements provided Kodak employees an average daily intake of 1,830 mg of omega-3 hormone precursors - - similar to current advice from the American Heart Association and the American Psychiatric Association. The added omega-3 HUFA likely lowered the %omega-6 in HUFA of employees' tissues from a value near 70% in control subjects to below 50% - - a change that lowers excessive omega-6 hormone actions known to cause more severe atherosclerosis, arthritis, asthma, bone loss, cancer growth, heart attacks, length of hospital stays, depression, suicide, classroom disruptions and unproductive workplace behaviors (2, 4).

## **Conclusion:**

Hundreds of research papers interpret multiple health-related aspects of omega-3 deficits monitored by the easily assayed low cost blood biomarker (6). A voluntary lowering of 20% in the current average %omega-6 in HUFA may prevent \$440 million annual corporate losses for 100,000 employees with modern health-care insurance plans. The lowering is equivalent to \$4 billion annually for the million employees of a Wal-Mart-like corporation and to \$800 billion annually for 200 million US adults. CEOs can arrange for feedback data in employees' health records to let actuaries inform corporate managers and employees how much financial loss associates with preventable omega-3 deficits. This feedback data focuses attention on encouraging voluntary food intakes that prevent the cause of health impairments and their large annual corporate financial losses.

## **Acknowledgement:**

The author thanks Dr. John C. Umhau (NIAAA, NIH, USPHS) for providing the historical papers on cod liver oil.

## **References:**

1. Lands WE. Diets could prevent many diseases. *Lipids*. 2003 Apr;38(4): 317-321.
  2. Lands B. A critique of paradoxes in current advice on dietary lipids. *Prog Lipid Res*. 2008 Mar;47(2): 77-106.
  3. Lands B. False profits and silent partners in health care. *Nutr Health*. 2009; 20(2):79-89.
  4. Lands B. Planning primary prevention of coronary disease. *Curr Atheroscler Rep*. 2009 Jul;11(4):272-280.
  5. CDCP website <http://www.cdc.gov/NCCDPHP/publications/AAG/dhdsp.htm#aag>
  6. Lands B. Measuring blood fatty acids as a surrogate indicator for coronary heart disease. *World Rev Nutr Diet*. 2009;100:22-34. Epub 2009 Aug 17.
  7. Freeman MP, Hibbeln JR, Wisner KL, Davis JM, Mischoulon D, Peet M, Keck PE Jr, Marangell LB, Richardson AJ, Lake J, Stoll AL. Omega-3 fatty acids: evidence basis for treatment and future research in psychiatry. *J Clin Psychiatry*. 2006 Dec;67(12):1954-67.
  8. Hibbeln JR, Davis JM. Considerations regarding neuropsychiatric nutritional requirements for intakes of omega-3 highly unsaturated fatty acids. *Prostaglandins Leukot Essent Fatty Acids*. 2009 Aug-Sep;81(2-3):179-86.
  9. Loeppke R, Taitel M, Richling D, Parry T, Kessler RC, Hymel P, Konicki D. Health and productivity as a business strategy. *J Occup Environ Med*. 2007 Jul;49(7):712-721.
  10. Stermann JD. Learning from evidence in a complex world. *Am J Public Health*. 2006; 96(3): 505-514.
  11. Milstein A, Darling H. Better US health care at lower cost. *Issues Sci Technol*. 2010 Winter; 26(1): 31-40.
  12. Holmes AD, Pigott MG, Sawyer WA, Comstock L. Cod liver oil: A five-year study of its value for reducing industrial absenteeism caused by colds and respiratory diseases. *Industrial Medicine* 1936; 5(7): 358-361.
-